```
=> d his

     (FILE 'HOME' ENTERED AT 16:04:10 ON 28 FEB 2007)
     FILE 'CA' ENTERED AT 16:04:18 ON 28 FEB 2007
L1   386 S (2 OR TWO OR DUAL OR DOUBLE OR THREE OR 3 OR 4 OR FOUR OR 5 OR
         FIVE OR 6 OR SIX OR SEVEN OR 7 OR EIGHT OR 8 OR NINE OR 9 OR TEN OR
         10)(4A)ROBOT?)
L2    80 S ((2 OR TWO OR DUAL OR DOUBLE OR THREE OR 3 OR 4 OR FOUR OR 5 OR
         FIVE OR 6 OR SIX OR SEVEN OR 7 OR EIGHT OR 8 OR NINE OR 9 OR TEN OR
         10)(4A)ROBOT?) (3A) (DIMENSIONAL OR AXIS) NOT(ZYMARK OR BENCHMATE)
L3   306 S L1 NOT L2
L4    12 S L3 AND(ZYMARK OR BENCHMATE)
L5   294 S L3 NOT L4
L6   128 S L5 AND AUTOMAT?
L7   107 S L6 NOT(X RAY OR WELDING OR VISION OR PEEK OR PAINTING OR
         CRYSTALLI? OR WEATHERING)
L8    99 S L7 NOT(PAINT OR KLOE OR SOLDERING OR SPILL OR UNDER WATER OR
         DIAPER OR MELT ADHESIVE)
L9    39 S L5 NOT L6 AND(ANALY? OR SCREEN?)
L10   22 S L9 NOT(CVD OR STAR OR AIA OR WELD OR MOX OR SOLAR OR CATALYST OR
         PVDF OR STP OR LUNAR OR MICF OR SAFARI OR GRB OR MARS OR FLEXURE)
L11  133 S L4,L8,L10
L12   86 S L11 AND PY<2001

=> d bib,ab l14 1-86

L12  ANSWER 3 OF 86  CA  COPYRIGHT 2007 ACS on STN
AN   134:190251  CA
TI   The planning and establishment of a sample preparation laboratory for
     drug discovery
AU   Dufresne, Claude
CS   Natural Products Drug Discovery, Automation & Informatics Group, Merck
     Research Laboratories, Rahway, NJ, 07065, USA
SO   Journal of Automated Methods & Management in Chemistry (2000), 22(6),
     175-179
AB   Nature has always been a productive source of new drugs.  With the
     advent of high-throughput screening, it has now become possible to
     rapidly screen large sample collections.  In addn. to seeking greater
     diversity from natural product sources (microorganisms, plants, etc.),
     fractionation of the crude exts. prior to screening is becoming a more
     important part of our efforts.  As sample prepn. protocols become more
     involved, automation can help to achieve and maintain a desired sample
     throughput.  To address the needs of our screening program, 2 robotic
     systems were designed.  The 1st system processes crude exts. all the way
     to 96-well plates, contg. solns. suitable for screening in biol. and
     biochem. assays.  The system can dissolve crude exts., fractionate them
     on solid-phase extn. cartridges, dry and weigh each fraction, re-
     dissolve them to a known concn., and prep. mother plates.  The second
     system replicates mother plates into a no. of daughter plates.

L12  ANSWER 31 OF 86  CA  COPYRIGHT 2007 ACS on STN
AN   124:254895  CA
TI   EDP-supported automation concept for conventional microtitration plate
     enzyme immunoassays in the serodiagnosis of infectious diseases
```

AU Putzker, Michael; Edler, Harald; Thode, Christian; Zoeller, Lothar
CS Ernst-Rodenwaldt-Inst., Koblenz, D-56065, Germany
SO Klinisches Labor (**1996**), 42(1/2), 21-30
LA German
AB An **automation** strategy integrating 4 microtiter plate (MTP) processors and **2** pipetting **robots** (PLATO 3000) in an online mode is described. The system controlled by a NOVELL network with an integrated database management (PARADOX 4.0) allows a largely **automated** processing of the sera and pos. sample identification by bar codes, and generates work lists for each assay. Enzyme immunoassays for 27 parameters were established on the system. The workload is about 5000 tests/mo consisting of 8000 single anal. (42% of the immunodiagnostic routine anals.). The file server is connected online to the lab. EDP (UNIX) which transmits the assay profiles of the sera, receives the final results, and summarizes them in the medical lab. report after tech. and medical validation. Intraassay and interassay reproducibilities and potential carryover of samples by the pipetting roboter were evaluated by defined sera.

L12 ANSWER 54 OF 86 CA COPYRIGHT 2007 ACS on STN
AN 117:185716 CA
TI Sequencing by hybridization: towards an **automated** sequencing of one million M13 clones arrayed on membranes
AU Drmanac, Radoje; Drmanac, Snezana; Labat, Ivan; Crkvenjakov, Radomir; Vicentic, Aleksandra; Gemmell, Anne
CS Biol. Med. Res. Div., Argonne Natl. Lab., Argonne, IL, 60439-4833, USA
SO Electrophoresis (**1992**), 13(8), 566-73
AB An immediately applicable variant of the sequencing by hybridization (SBH) method is under development with the capacity to det. up to 100 million base pairs per yr. The proposed method comprises 6 steps: (1) arraying genomic or cDNA M13 clones in 864-well plates (wells of 2 mm); (2) prepn. of DNA samples for spotting by growth of the M13 clones or by polymerase chain reaction (PCR) of the inserts using std. 96-well plates, or plates having as many as 864 correspondingly smaller wells; (3) **robotic** spotting of 13,824 samples on an 8 × 12 cm nylon membrane, or corresponding more, on up to 6 times larger filters, by offset printing with a 96 or 864 0.4 mm pin device; (4) hybridization of dotted samples with 200-2000 32P-labeled probes comprising 16-256 10-mers having a common 8-mer, 7-mer, or 6-mer in the middle (20 probes per day, each hybridized with 250,000 dots); (5) scoring hybridization signals of 5 million sample-probe pairs per day using storage phosphor plates; and (6) computing clone order and partial-to complete DNA sequences using various heuristic algorithms. Genome sequencing based on a combination of this method and gel sequencing techniques may be significantly more economical than gel methods alone.

=> log y
STN INTERNATIONAL LOGOFF AT 16:54:04 ON 28 FEB 2007

=> d his

(FILE 'HOME' ENTERED AT 15:09:22 ON 28 FEB 2007)
FILE 'CA' ENTERED AT 15:10:29 ON 28 FEB 2007

L1 1033 S (ROTAR? OR ROTAT? OR ZYMARK)(8A)(ROBOT? OR ARM OR LIQUID HANDLER)
L2 29 S L1 AND (HPLC OR LIQUID CHROMATOG?)
L3 23 S L2 AND PY<2001

=> d bib,ab l3 1-23

L3 ANSWER 7 OF 23 CA COPYRIGHT 2007 ACS on STN
AN 125:316094 CA
TI Automated determination of a novel anti-inflammatory drug in plasma using batch robotic sample preparation and **HPLC**
AU Hoffman, K. L.; Andress, L. D.; Parker, T. D., III; Guttendorf, R. J.; Rossi, D. T.
CS Parke-Davis Pharmaceutical Res., Warner-Lambert Co., Ann Arbor, MI, 48105, USA
SO Laboratory Robotics and Automation (**1996**), 8(4), 237-242
AB A **Zymark** XP **Robot** has been adapted to ext. a novel anti-inflammatory drug (CI-1004) and internal std. (IS) from rat plasma using a batch robotic solid-phase extn. system. Under computer control, the robot automatically conditions, loads, washes, and elutes up to 144 solid-phase cartridges in parallel. The system incorporates a miniature pressure transducer to monitor and control manifold vacuum, thereby controlling solvent flow through the cartridges. **Liq. chromatog.** sepn. was achieved isocratically on a Zorbax Rx-C8 anal. column (4.6 nm i.d. × 250 mm). Mobile phase consisted of 65:35 (vol./vol.) acetonitrile and 20 mM ammonium acetate (pH = 4.0). Column effluent was monitored spectrophotometrically at 360 nm. Specificity, chromatog. performance parameters, system repeatability, recovery from matrix, linearity, precision, and accuracy were evaluated. No interfering peaks were obsd. at the retention time of CI-1004 throughout the validation process. Peak-height ratios were proportional to CI-1004 in rat plasma over the concn. range of 7.5-5000 ng/mL. The system is capable of extg. 100 plasma samples in approx. 5 h.

L3 ANSWER 8 OF 23 CA COPYRIGHT 2007 ACS on STN
AN 124:164156 CA
TI Manual and automated (robotic) high-performance **liquid chromatography** methods for the determination of mycophenolic acid and its glucuronide conjugate in human plasma
AU Tsina, Irene; Chu, Frances; Hama, Kyle; Kaloostian, Martin; Tam, Yuen Ling; Tarnowski, Thomas; Wong, Belinda
CS Palo Alto, CA, 94303, USA
SO Journal of Chromatography, B: Biomedical Applications (**1996**), 675(1), 119-29
AB A manual and an automated (**Zymark** PyTechnol. **robot**) **HPLC** method for simultaneous detn. of plasma mycophenolic acid (MPA) and its glucuronide conjugate (MPAG) are described here. Both methods are reproducible and accurate, and both are equiv. in all respects, including quantification limits (MPA, 0.100 μg/mL; MPAG, 4.00 μg/mL), range (using 0.05-0.5 mL of plasma: MPA, 0.0500-20.0 μg/aliquot; MPAG, 2.00-200 μg/aliquot), precision, and accuracy. MPA and MPAG were stable under the conditions used with both methods. Results from aliquots of paired control samples, analyzed by the manual method over three years at six anal. labs., showed excellent agreement in precision and accuracy.

L3 ANSWER 9 OF 23 CA COPYRIGHT 2007 ACS on STN
AN 123:187595 CA
TI Automated high-performance **liquid chromatographic** method for the determination of a neuraminidase inhibitor (GG167) in human serum by pre-column fluorescence derivatization using benzoin
AU Stubbs, R. J.; Harker, A. J.
CS Drug Metabolism I, Glaxo Research and Development Ltd, Greenford Road, Greenford, Middlesex, UB6 0HE, UK
SO Journal of Chromatography, B: Biomedical Applications (**1995**), 670(2), 279-85
AB A pre-column fluorescence derivatization high-performance **liq. chromatog.** method for the anal. of a neuraminidase inhibitor, GG167, in human serum is described. GG167 was extd. from serum samples using Bond Elut SCX solid-phase extn. cartridges, followed by derivatization with benzoin prior to reversed-phase chromatog. with fluorescence detection. This method has been automated using a **Zymark robot** and used in the anal. of human serum samples from clin. studies. The method has been shown to be valid over a concn. range of 10-800 ng/mL using a 1-mL sample vol.

L3 ANSWER 10 OF 23 CA COPYRIGHT 2007 ACS on STN
AN 122:255340 CA
TI Manual and automated determination of 1-β-D-arabinofuranosyl-E-5-(2-bromovinyl)uracil and its metabolite (E)-5-(2-bromovinyl)uracil in urine
AU Whigan, Daisy B.; Schuster, Alan E.
CS Department of Metabolism and Pharmacokinetics, Bristol-Myers Squibb Pharmaceutical Research Institute, Princeton, NJ, 08543-4500, USA
SO Journal of Chromatography, B: Biomedical Applications (**1995**), 664(2), 357-63
AB This paper describes the detn. of 1-β-D-arabinofuranosyl-E-5-(2-bromovinyl)uracil and its metabolite (E)-5-(2-bromovinyl)uracil in urine. The method involves sample clean-up by liq.-liq. extn. with Et acetate followed by high-performance **liq. chromatog.** (**HPLC**) anal. The sample prepn. may be performed either manually or automatically using a **Zymark** Py-**robotic** system. The chloro analog of the parent compd., CV-araU, is used as the internal std. As low as 0.1 μg of analyte per mL of urine can be measured. This sensitivity is adequate for pharmacokinetic studies but could be improved quite easily if necessary.

L3 ANSWER 15 OF 23 CA COPYRIGHT 2007 ACS on STN
AN 118:45860 CA
TI Robot automation of routine assays in the stability testing of solid dosage forms
AU Conder, S.
CS Dep. Anal. Res. Dev., Bristol-Myers Squibb, New Brunswick, NJ, 08903-0191, USA
SO Proc. Int. Symp. Lab. Autom. Rob. (**1992**), Meeting Date 1991, 116-36 Publisher: Zymark Corp., Hopkinton, Mass.
AB The increasing demands of stability testing of solid dosage forms during drug development have created an immense sample load for routine assays, such as in vitro dissoln. testing, composite and single tablet **HPLC** assays, and Karl Fischer moisture anal. The productive capacity of the

lab. which uses manual or semi-automated methods is easily overwhelmed by the vol. of samples generated during these studies. The need for fast, accurate, and flexible automation capable of solving the variety of anal. problems facing the labs. involved with stability testing is necessary to speed drug development. The New Brunswick Anal. Research & Development Department of Bristol-Myers Squibb has designed a lab. dedicated to robot automation of the routine time consuming assays involved with stability testing. The lab. was designed to contain up to 9 robots. Currently, 6 **Zymark robots** and a Source for Automation (SFA) tablet extn. workstation are operational. The **Zymark** system types include 4 dissoln. testing **robots**, one **HPLC** assay robot, and a dual-function robot for Karl Fischer moisture detns. and tablet assays by wet-homogenization. This study discusses several examples of successful assays performed by these robots, including the problems of system validation and sample/data management. The lab. was successful in completing over 20,000 tablet assays in its first two years of operation.

L3 ANSWER 16 OF 23 CA COPYRIGHT 2007 ACS on STN
AN 118:15774 CA
TI Robotic solid phase extraction and high performance **liquid chromatographic** analysis of ranitidine in serum or plasma
AU Lloyd, Thomas L.; Perschy, Teresa Benedetti; Gooding, Ann E.; Tomlinson, Julie J.
CS Res. Inst., Glaxo Inc., Research Triangle Park, NC, 27709, USA
SO Biomedical Chromatography (**1992**), 6(6), 311-16
AB A fully automated assay for the anal. of ranitidine in human blood serum and plasma, with and without an internal std., was validated. The assay utilizes robotic solid phase extn. with online **HPLC** anal. The ruggedness of the assay was demonstrated over a 3-yr period. A **Zymark** Py Technol. II **robotic** system was used for serial processing from initial aspiration of samples from original collection containers, to final direct injection onto the online **HPLC** system. Automated serial processing with online anal. provided uniform sample history and increased productivity. The solid phase extn. efficiency was 94% throughout the assay range of 10-250 ng/mL. The coeffs. of variation for within- and between-day quality control samples was 1-6% and 1-5%, resp. The mean accuracy for between-day stds. and quality control results was 97-102%.

L3 ANSWER 17 OF 23 CA COPYRIGHT 2007 ACS on STN
AN 117:232374 CA
TI Development of laboratory robotics at FDA: automated systems for the determination of natural toxins and pesticides
AU Carman, Allen S., Jr.; Kuan, Shia S.; Miller, Kenneth V.; Guerrero, Humberto G.
CS Nat. Toxins Res. Cent., U. S. Food and Drug Adm., New Orleans, LA, 70122, USA
SO Proc. Int. Symp. Lab. Autom. Rob. (**1992**), Meeting Date 1991, 415-35 Publisher: Zymark Corp., Hopkinton, Mass.
AB Because of the reprogrammability of robot automated tasks, this approach to automation has been called flexible automation. This feature makes this type of automation particularly attractive to labs. such as those

in the FDA requiring increased productivity, but hindered by a frequently changing and often unpredictable, heterogeneous workload. To evaluate the potential of flexible automation, the Natural Toxins Research Center (NTRC) developed a system for the **HPLC** detn. of solanaceous alkaloids in potatoes and the detn. of aflatoxins in milk and other matrixes. This system is described with emphasis on a column liq. level sensor whose development was crit. to the successful completion of the aflatoxin method and an **HPLC** injector developed inhouse to save costs. Complete changeover of this system for glycoalkaloid to aflatoxin assay can be accomplished in less than three hours. A pesticide residue screening procedure amenable to automation for use in raw agricultural products was developed by the District Lab. Recoveries of 15 pesticides from six commodities and a comparison of recoveries of 11 pesticides by this procedure with a well established screening procedure show that this procedure is a good candidate for a screening procedure, and that it compares acceptably with the established procedure. Based on these data, a second **robotics** system developed using **Zymark** technol. was obtained to perform pesticide residue screening in raw agricultural products and detn. of aflatoxins. The screening procedure and the robotics system are described. The design and construction inhouse of a pneumatically-operated transfer **arm**, and the modification of a **Zymark** evapn. station to provide controlled evapn. for this system are presented.

L3 ANSWER 19 OF 23 CA COPYRIGHT 2007 ACS on STN
AN 115:173956 CA
TI The automated determination of milrinone in human plasma using a **Zymark robot**
AU Utter, Julie T.; Cook, Jack A.; Brown, Richard R.
CS Dep. Drug Metab. Pharmacokinet., Sterling Res. Group, Rensselaer, NY, 12144, USA
SO Laboratory Robotics and Automation (**1991**), 3(1), 19-26
AB An automated anal. method for the quantitation of milrinone in human plasma was developed using a **Zymark Robot** with **HPLC** and UV detection. A linear response was obsd. for the plasma calibration curve range of 5 to 1000 ng/mL. The extn. efficiency was approx. 78% for milrinone. The extn. efficiency for internal stds. I and II were 88 and 87%, resp. The precision was ±2.8%, and the accuracy ranged from 0 to 4.6% with internal std. I. The precision was ± 3.1%, and the accuracy ranged from -1.1 to 4.7% with internal std. II. The precision and accuracy is comparable to published methods. The utility of the method was demonstrated through the anal. of plasma samples from congestive heart failure patients after 7 days of oral administration of 10 mg milrinone (every 6 h).

L3 ANSWER 20 OF 23 CA COPYRIGHT 2007 ACS on STN
AN 114:88806 CA
TI Automation of the ivermectin **HPLC** content uniformity assay for Heartgard-30 tablets using PyTechnology robotics
AU Curran, John R.
CS Merck and Co., Inc., Rahway, NJ, 07065, USA
SO Advances in Laboratory Automation Robotics (**1989**), 5, 381-95
AB An automated system utilizing **Zymark**'s PyTechnol. **robotics** was designed,

installed and validated to perform the content uniformity **HPLC** assay of the active ingredient, ivermectin, in Heartgard-30 tablets. The system performs complete sample prepn. for the individual tablets including disintegration, extn., and centrifugation. Filtered portions of supernatant are injected onto one of two online **liq. chromatographs**. Aliquots of a manually prepd. soln. of ivermectin ref. std. are injected at appropriate intervals throughout the anal. for quantitation purposes. An Epson 1+ personal computer stores the chromatog. data and performs the data redn. after appropriate review using the Spectra-Physics WINner software package. The design of the system allows for a virtual direct transfer of the manual procedure. Complete system programming, setup and validation was performed in just over one month. The use of the system has resulted in significant manpower savings during periods of peak operation.

L3 ANSWER 21 OF 23 CA COPYRIGHT 2007 ACS on STN
AN 114:61246 CA
TI Controlling the Purdue Automated Synthesis System
AU Lantrip, Douglas A.; Fuchs, Philip L.; Kramer, Gary W.
CS Dep. Chem., Purdue Univ., West Lafayette, IN, 47907, USA
SO Advances in Laboratory Automation Robotics (**1989**), 5, 115-37
AB The Purdue Automated Synthesis System (PASS) is being created to allow org. reaction development, anal., and optimization to be carried out by a machine. PASS couples a distributed computer control network with dual **Zymark** lab. **robot arms**, automated reactors, fully automated gas and **liq. chromatographs**, and other computer-controllable devices. The control architecture for PASS features a central executive computer linked through a star network to managerial computers. These managers drive the work devices that actually carry out the system operations. In some instances, the work devices are as simple as a valve or a switch; but in other cases, a work device can be an entire computer system, such as a data station which controls a chromatograph.

L3 ANSWER 23 OF 23 CA COPYRIGHT 2007 ACS on STN
AN 106:18920 CA
TI Application of robotics to radiopharmaceutical preparation: controlled synthesis of fluorine-18 16α-fluoroestradiol-17β
AU Brodack, James W.; Kilbourn, Michael R.; Welch, Michael J.; Katzenellenbogen, John A.
CS Sch. Med., Washington Univ., St. Louis, MO, 63110, USA
SO Journal of Nuclear Medicine (**1986**), 27(5), 714-21
AB A com. available **robot** system, the **Zymark** Zymate Lab. Automation System, was utilized for the prepn. of a positron-emitting radiopharmaceutical, 16α-[18F]fluoro-17β-estradiol (I) in a 3-step synthesis: II (Tf = CF3SO2) was treated with Bu4N18F to give III which was reduced with LiALH4 followed by HCl treatment. All steps in the synthesis and **HPLC** purifn. are controlled by the robot system with no manual intervention. This respresents a new approach to the complete automation of radiopharmaceutical prodn.

=> log y
STN INTERNATIONAL LOGOFF AT 15:12:56 ON 28 FEB 2007

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=> d his

     (FILE 'HOME' ENTERED AT 11:12:12 ON 28 FEB 2007)
     FILE 'CA' ENTERED AT 11:16:43 ON 28 FEB 2007
L1  1033 S (ROTAR? OR ROTAT? OR ZYMARK)(8A)(ROBOT? OR ARM)
L2     9 S L1 AND (MICROPLATE OR (MICROTITER OR MICROWELL OR MULTIWELL)(3A)
         (PLATE OR TRAY))
L3  1872 S (PIN OR COMB OR MULTIPIN)(5A)(ARRAY OR REPLICA? OR STAMP? OR
         TRANSFER? (3A)(TOOL OR DEVICE OR EQUIPMENT OR APPARATUS)) OR
         (REPLICA? OR SPOT?)(3A)(TOOL OR DEVICE OR EQUIPMENT OR APPARATUS)
L4   100 S L3 AND(ROBOT? OR AUTOMAT? OR SEMIAUTOMAT?)
L5    41 S L1,L3 AND HIGH THROUGHPUT
L6   139 S L2,L4-5
L7   122 S L6 NOT(SEMICONDUCTOR WAFER OR POTTING OR WELDING OR GUN OR SPARK
         OR SKIVE OR LIQUID CRYSTAL OR TAB DEVICE OR SBCF)
L8   109 S L7 NOT(ETCH OR COATING WIRE OR LITHOGR? OR SOIL OR DENSITY TAB OR
         VAPOR DEPOSIT? OR SEDIMENT)
L9     4 S L7 NOT L8 AND (ARRAY OR MICROARRAY OR ROBOTIC)/TI
     FILE 'BIOSIS' ENTERED AT 11:47:25 ON 28 FEB 2007
L10   55 S L8-9
     FILE 'MEDLINE' ENTERED AT 11:49:12 ON 28 FEB 2007
L11   31 S L8-9
     FILE 'CA, BIOSIS, MEDLINE' ENTERED AT 11:50:19 ON 28 FEB 2007
L12  156 DUP REM L8 L9 L10 L11 (43 DUPLICATES REMOVED)

=> d bib,ab,kwic l12 1-156

L12  ANSWER 102 OF 156  CA  COPYRIGHT 2007 ACS on STN
AN   132:58675  CA
TI   Determination of a "GW cocktail" of cytochrome P450 probe substrates and
     their metabolites in plasma and urine using automated solid phase
     extraction and fast gradient liquid chromatography tandem mass
     spectrometry
AU   Scott, Rebecca J.; Palmer, Jonathan; Lewis, Ivor A. S.; Pleasance,
     Stephen
CS   Department of International Bioanalysis, Glaxo Wellcome R and D, Herts,
     SG12 0DP, UK
SO   Rapid Communications in Mass Spectrometry (1999), 13(23), 2305-2319
AB   A mass spectrometry based method for the simultaneous detn. of an in
     vivo Greenford-Ware or "GW cocktail" of CYP450 probe substrates and
     their metabolites in both human plasma and urine is described.  The
     probe substrates, caffeine, diclofenac, mephenytoin, debrisoquine,
     chlorzoxazone and midazolam, together with their resp. metabolites and
     stable isotope labeled internal stds., are simultaneously extd. from the
     biol. matrix using solid phase extn. in 96-well microtiter plate format,
     automated by means of a custom built Zymark robotic system.  The exts.
     are analyzed by fast gradient high performance liq. chromatog. (HPLC)
     with detection by tandem mass spectrometry (MS/MS) using thermally and
     pneumatically assisted electrospray ionization in both pos. and neg. ion
     modes and selected reaction monitoring.  The methods are specific,
     accurate and precise with intra- and inter-assay precision (%CV) of less
     than 15% for all analytes.

L12  ANSWER 105 OF 156  BIOSIS on STN
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AN 1999:39367 BIOSIS
TI Determination of the enantiomers of salbutamol and its 4-O-sulphate metabolites in biological matrices by chiral liquid chromatography tandem mass spectrometry.
AU Joyce, Karina B.; Jones, Anne E.; Scott, Rebecca J.; Biddlecombe, Robert A.; Pleasance, Stephen [Reprint author]
CS Dep. Intl. Bioanalysis, Div. Bioanalysis Drug Metabolism, Glaxo Wellcome R and D, Park Rd., Ware, Hertfordshire SG12 0DP, UK
SO Rapid Communications in Mass Spectrometry, (1998) Vol. 12, No. 23, pp. 1899-1910.
AB Sensitive, mass spectrometry based bioanalytical methods are described for the determination of the R- and S-enantiomers of the beta-agonist salbutamol (albuterol) and its 4-O-sulphate metabolite in human plasma and urine. In both methods samples are prepared by 96 well format solid phase extraction using a custom built robotic system. Extracts are then analysed by liquid chromatography tandem mass spectrometry (LC-MS/ MS) using a teicoplanin-based chiral stationary phase and selected reaction monitoring. The methods are accurate (bias < +- 10%), precise (%CV < 11%) and sensitive, providing lower limits of quantitation (LLoQ) in plasma of 100 pg/mL and 5 ng/mL for the enantiomers of salbutamol and its 4-O-sulphate metabolite, respectively. By restricting the chiral method for plasma to the enantiomers of salbutamol only, it was possible to revalidate at an improved LLoQ of 25 pg/mL. A **high throughput** LC-MS/MS method has also been developed for racemic salbutamol only, which uses a similar extraction procedure but a conventional Cs column. The method has a reduced analysis time of three minutes per sample and using a high sensitivity, triple quadrupole mass spectrometer provides an LLoQ of 5 pg/mL based on extraction of 0.5 mL of plasma.

L12 ANSWER 107 OF 156 CA COPYRIGHT 2007 ACS on STN
AN 130:61220 CA
TI Determination of the glucocorticoid fluticasone propionate in plasma by automated solid-phase extraction and liquid chromatography-tandem mass spectrometry
AU Callejas, Sheryl L.; Biddlecombe, Robert A.; Jones, Anne E.; Joyce, Karina B.; Pereira, Adrian I.; Pleasance, Stephen
CS Department of International Bioanalysis, Division of Bioanalysis and Drug Metabolism, GlaxoWellcome Research and Development, Ware, Herts, SG12 0DP, UK
SO Journal of Chromatography, B: Biomedical Sciences and Applications (1998), 718(2), 243-250
AB A sensitive, robust and **high throughput** mass spectrometry based method is described for the detn. of the glucocorticoid fluticasone propionate in plasma. The method employs solid-phase extn. in 96 well **microtiter plate** format which has been automated by a custom built **Zymark robotic** system. The exts. are analyzed by liq. chromatog.-tandem mass spectrometry using thermally and pneumatically assisted electrospray ionization and selected reaction monitoring. The method is both accurate and precise with both intra- and inter-assay precision (C.V.) of <6%. The method provides a lower limit of quantification of 20 pg/mL from 0.5 mL of human plasma, sufficient to monitor systemic concns. of inhaled fluticasone propionate at therapeutic doses.

L12 ANSWER 120 OF 156 CA COPYRIGHT 2007 ACS on STN

AN 123:247747 CA
TI A modified **robotic** pipettor for performing genome analysis protocols
AU Shumate, Chris; Mardis, Elaine; Weinstock, Lori; Bruce, David
CS Hamilton Company, Reno, NV, 89502, USA
SO Laboratory Robotics and Automation (1995), 7(2), 73-80
AB The requirement for **automation** in genome mapping and sequencing efforts has been addressed by modifying a com. available workstation to be capable of performing some of the common lab. operations. These operations include pipetting reaction mixts. and reagents, loading samples onto gels, and gridding clones onto filters. Minor adaptations to the existing workstation allowed **high throughput** processing of cycle sequencing reaction mixts. and polyacrylamide gel loading. High-d. gridding of YAC and cosmid libraries was accomplished with a floating **pin replicating** head. The ability to **automate** a variety of unit operations with only minor changes in racks or probes makes this workstation an effective tool in genome-scale efforts. A description of the modifications to the workstation and its performance will be presented.

L12 ANSWER 121 OF 156 BIOSIS on STN
AN 1994:431031 BIOSIS
TI Processing of cDNA and genomic kilobase-size clones for massive screening, mapping and sequencing by hybridization.
AU Drmanac, Snezana; Drmanac, Radoje [Reprint author]
CS Integral Genetics Group, Cent. Mechanistic Biol. Biotechnol., Argonne Natl. Lab., 9700 South Cass Ave., Argonne, IL 60439, USA
SO Biotechniques, (1994) Vol. 17, No. 2, pp. 328, 329, 332-336.
AB Efficient procedures for managing a large number of M13 or plasmid clones have been developed. In addition to picking, clones are directly arrayed in multiwell plates by dispensing diluted transformation mixtures. Metal **pin arrays** are used for fast inoculations of preparative plates filled by medium or by PCR mixture. Growth of M13 clones in multiwell plates is optimized to obtain a consistently high yield, and a PCR protocol is defined for reliable amplification of several thousand M13 or plasmid inserts per day in BioOvens. Over 80000 cDNA inserts have been amplified. The phages or amplified inserts are spotted on nylon filters using an **array** of **pins** having a flat bottom, 0.3 mm in diameter. The procedures are suitable for an **automated** processing of hundreds of thousands of short clones from representative cDNA and genomic libraries. Hybridization of arrayed clones with oligonucleotide and complex probes can simplify the search for new genes and accelerate large-scale sequencing.

L12 ANSWER 124 OF 156 CA COPYRIGHT 2007 ACS on STN
AN 117:229498 CA
TI Robotic enzyme-linked immunosorbent assay (ELISA) system for rodent serology: modifications to enhance capacity, throughput and sensitivity
AU Shek, W. R.; Oskar, P. A.; Cerra, M. A.
CS Charles River Lab., Wilmington, MA, 01887, USA
SO Proc. Int. Symp. Lab. Autom. Rob. (1992), Meeting Date 1991, 282-98 Publisher: Zymark Corp., Hopkinton, Mass.
AB A robotic **microtiter plate** ELISA systems for rodent serol. was modified to further enhance its performance. The storage racks were changed so

that more **microtiter plates** can be processed per run. The **robot** controller was upgraded to a **Zymark** System V and the **robot** and remote computer software were altered to permit the addn. of Sample and test Plates after a run has been started. Assay sensitivity was increased by doubling the no. of plates processed per cycle and hence, the incubation times. Finally, software and hardware changes, including a unique modification to the 96-well plate washer, were made to improve reliability and error detection.

L12 ANSWER 125 OF 156 CA COPYRIGHT 2007 ACS on STN
AN 118:45544 CA
TI Integrated use of robotic systems in a **high throughput** approach towards drug discovery
AU Beggs, Mark; Major, John; Bath, Colin; Hayden, Tina
CS High Throughput Screening Lab., ICI Pharm., Macclesfield/Cheshire, SK10 4TG, UK
SO Proc. Int. Symp. Lab. Autom. Rob. (1992), Meeting Date 1991, 192-5 Publisher: Zymark Corp., Hopkinton, Mass.
AB Randomly submitted samples from the Company's compd. collection were solubilized in DMSO using a **Zymark** Zymate II **robot**. The use of appropriate barcoding technol. permitted the robot to solubilize samples of varying wts. to give stock solns. of fixed concns. Working strength solns. were then automatically prepd. from the stock solns. A typical assay was subsequently performed using a Tecan RSP 5072 robot utilizing Amersham's Scintillation Proximity Assay Technol. Test compds., controls and reagents were added to 6 × 16 well T-Trays which are sealed and counted in a LKB Pharmacia 1205 Betaplate scintillation counter. All data anal. is automatic and results are automatically uploaded onto a mainframe relational database. Automation of these processes has resulted in a 7-fold increase in assay throughput as compared to manually operated screens.

L12 ANSWER 126 OF 156 CA COPYRIGHT 2007 ACS on STN
AN 116:167323 CA
TI Development of an automated workcell for DNA hybridization array construction
AU Medvick, Patricia A.; Hollen, Robert M.; Roberts, Randy S.
CS Rob. Sect., Los Alamos Natl. Lab., Los Alamos, NM, 87545, USA
SO Laboratory Robotics and Automation (1991), 3(4-5), 169-73
AB The human genome effort has highlighted a huge area for potential automation. Much of the work involved in prepg. maps of individual human chromosomes involves highly repetitive procedures. Efforts in technol. development have been directed toward gridding hybridization membranes from **microtiter**-well **plates**, data base development for robotic control, and initial storage of hybridization results. On the basis of requirements for high-d. grids, the authors designed a current automated gridding system with a 30-plate dispenser and a restacker to permit unattended performance. The hardware includes a NUTEC gantry **robot** with a Motion Science controller, a **Zymark** microtiterplate dispenser, a restacker, a Keithley control system, a Symbol Technologies bar code reader, a metal-pinned gridding tool, a sterilization station, a plate-lid holder, and an IBM personal computer. The software, originally written in C, has been converted to C + + in the object-oriented style

of the Robot Independent Programming Language (RIPL) developed by Sandia National Labs. to increase maintainability. A relational data base provides location information to the robotic arm. A path table permits rapid changes in the robot movement patterns. The data base tables make it possible to track an individual microtiter well through the gridding and subsequent radioactive-probe test. We can now stack 30 trays at a time for unattended gridding onto one or two membranes of one to six sectors with an interleave d. of 1, 4, 9, or 16 dots per well location. Arbitrary interleaves are also possible. Planned system improvements include incorporating a UNIX-based computer workstation for integrating the initial colony picking, membrane gridding, and hybridized membrane film assessment. Information gathered will be stored in an object-oriented data base for perusal prior to entry into the Los Alamos Lab. Notebook and the genome data base.

L12 ANSWER 143 OF 156 CA COPYRIGHT 2007 ACS on STN
AN 78:37689 CA
TI **Automatic** quantitative spotter for thin-layer and paper chromatography
AU Boag, J. W.; Bond, P. S.; Fielden, E. M.; Hodt, H.; Tramer-Zarebska, Z.
CS Div. Phys., Inst. Cancer Res., Belmont/Sutton/Surrey, UK
SO Journal of Chromatography (1972), 73(1), 265-9
AB An **automatic app.** for **spotting** dil. aq. solns. on chromatog. paper or thin layers has a series of solid needles which hold drops of liq. by surface tension. The narrow end of the solid (i.e. boreless) glass needle is ground flat for transporting the liq. drop. The needles are attached to a motor-driven bar that repeatedly transfers the needles from cone-shaped sample reservoir cups to the thin-layer plate or paper and back again to the reservoir cups for repeated application of a sample to a spot. The vol. of a H2O drop transfered by a 0.7-mm diam. needle was calcd. to be 0.04 μl. Complete evapn. of the spotted liq. between transfers is aided by an air stream. The av. recovery of 10-3M thymine spotted on a cellulose thin layer was 97.1%.

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